

Notes on adult emergence of *Sesia scribai* (Lepidoptera, Sesiidae) including location of emergence holes and weather parameters

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Abstract The location of emergence holes and the weather conditions at emergence of *Sesia scribai* (Bartel) were investigated in Nagoya, Japan. Most emergence holes were found below 150 cm of the trunk and on the northwest portion on the hostplant, *Quercus myrsinaefolia* Blume. Adults emerged from the trunk early in the morning (0800-1000 hrs) on clear weather days and throughout the day when rainy and cloudy. The temperature at the time of adult emergence ranged between 23.5-26.5°C at 5,000 lux illumination.

Key words Lepidoptera, Sesiidae, *Sesia scribai*, emergence holes, weather.

Introduction

It is suspected that the adults of clearwing moth species emerge early in the morning on clear days and from morning into the afternoon on cloudy days (Fig. 1). One of us (Satô) found that many adults of *Sesia scribai* (Bartel) emerged from the trunk of a large tree of *Quercus myrsinaefolia* Blume (Fagaceae) in late August 1992 in the precincts of a shrine in the city of Nagoya (Figs 3-4).

In this study, the location of emergence from the trunk of hostplant, the weather conditions on emergence day, and the temperature, the illumination and the humidity at emergence of *S. scribai* adults were investigated.

Material and Methods

During 10 August to 30 September 1993, field observations were made on a large *Quercus myrsinaefolia*, about 20 m in height and 3 m in maximum circumference in the precincts of Nitta-jinmyosha, Kisoji, Kita-ku, Nagoya-shi, Aichi-ken (Figs 1-4).

The adult emergence of *S. scribai* from the trunk was observed in relation to the weather, the time, the temperature, the illumination and the humidity. The location of emergence holes on the trunk of the hostplant was observed in relation to the compass direction. Observations of *S. scribai* emergence on the trunk of the host tree were recorded from 0700 until 1600 hrs. The newly emerged adults were numbered in order of their emergence.

Results and Discussion

The first emergence of an adult (a female) was on 27 August 1993, and the last emergence (a female) was on 25 September. During these periods of emergence, 45 adults, 20 males and 25 females, emerged from various locations on the trunk of the hostplant, the emergence time for seven adults could not be correctly recorded. The study year was unusual, with rainy and cloudy days during about half the emergence periods.

The number and placement of emergence holes on the trunk of the oak tree for these 45 adults of *S. scribai* were on south (1), southwest (4), east (1), northeast (0), north (9), northwest (16), west (6), and southwest (8) (Fig. 5). The northwest portion of the trunk

had by far the greatest number of emergence holes. Most of the holes were found on the trunk below 150 cm of the host tree.



Figs 1-4. *Sesia scribai* (Bartel). 1. Newly emerged female adult. 2. Emergence hole. 3. Emergence holes on trunk of host tree, white marks, north side. 4. Ditto, east side.

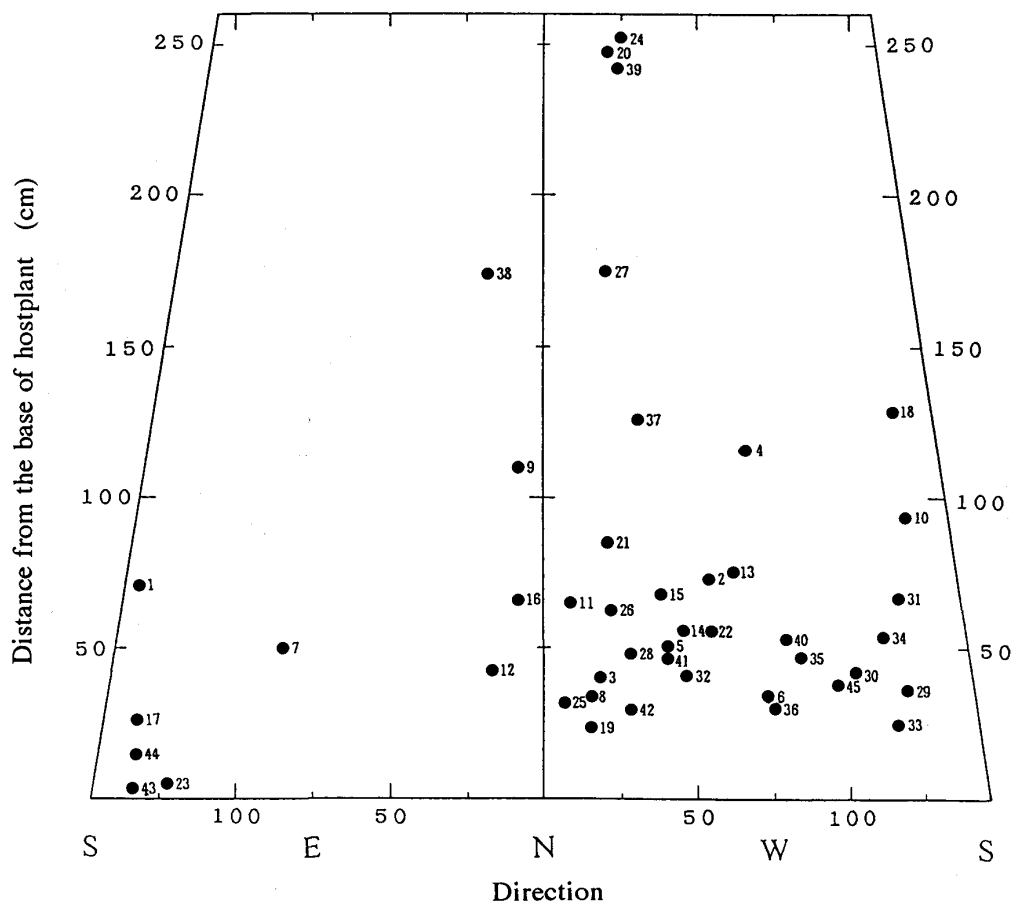


Fig. 5. Emergence holes of *Sesia scribai* on trunk of *Quercus myrsinaefolia*.

Table 1 shows the number of *S. scribai* adults which emerged from the trunk of the hostplant throughout the emergence period. On the clear days, the adults emerged early in the morning, 0800-1000 hrs. On rainy and cloudy days, the adults emerged continuously through the day time. Of the 38 specimens recorded at adult emergence time, 25 specimens emerged during the morning, 13 specimens emerging in the afternoon.

The temperature at adult emergence of *S. scribai* for more than half, 26 specimens, was between 23.5-26.5°C (Fig. 6). The illumination at adult emergence is shown in Fig. 7. Most of the adults, 33 specimens, emerged at 5,000 lux. Differences in the humidity at adult emergence had no noticeable affect (Fig. 8). The location of most emergence holes was below 150 cm of the tree and on the northwest face of the tree trunk. The data suggest that the emergence of adults was stimulated at over 23°C.

Table 1. Total number of *Sesia scribai* which emerged from trunk of the hostplant.

Weather	Time								Total
	7:00-	8:00-	9:00-	10:00-	11:00-	12:00-	13:00-	14:00-	
Fine		1	4				2		7
Cloudy	2		1	4	3	1	2	3	16
Rainy		4	3	3		1	3	1	15
Total	2	5	8	7	8	7	7	4	38

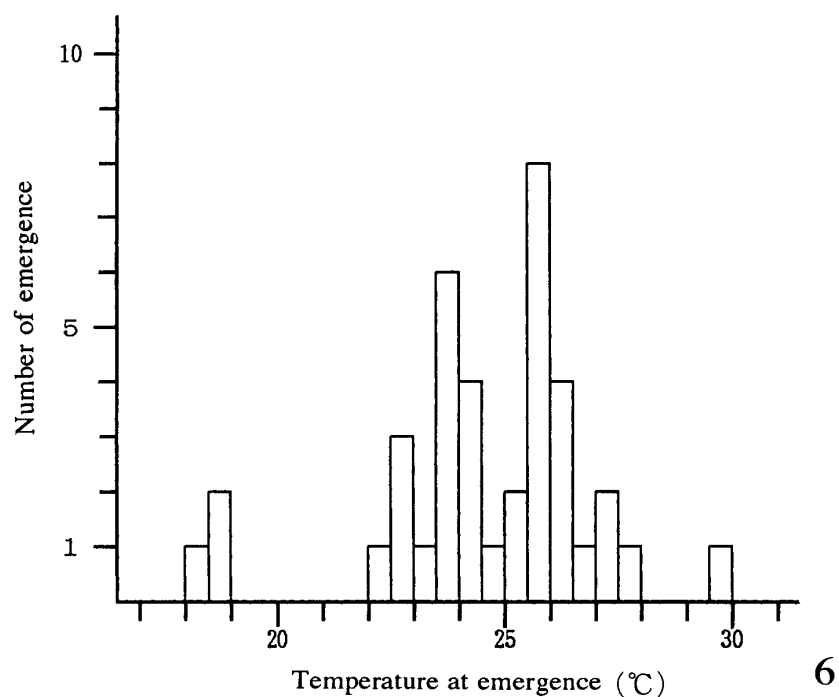


Fig. 6. Temperature at adult emergence of *Sesia scribai*.

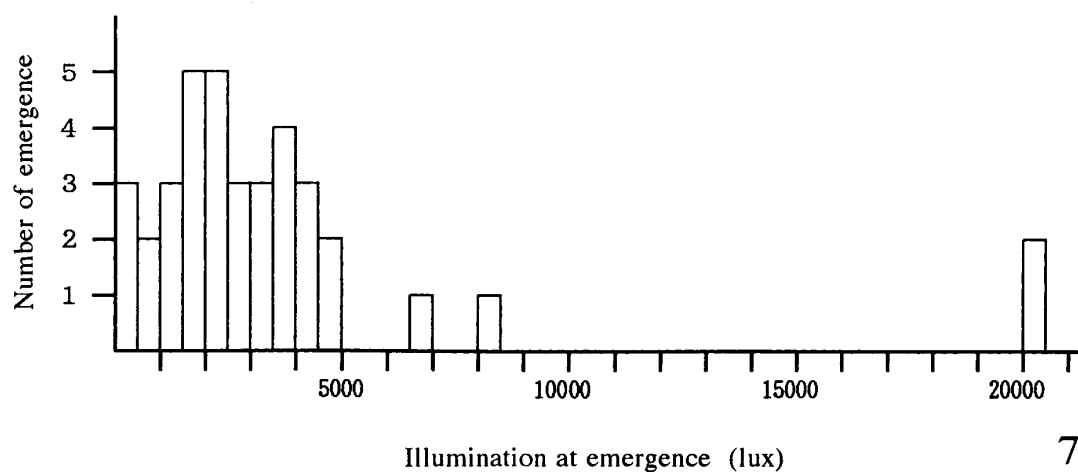


Fig. 7. Illumination at adult emergence of *Sesia scribai*.

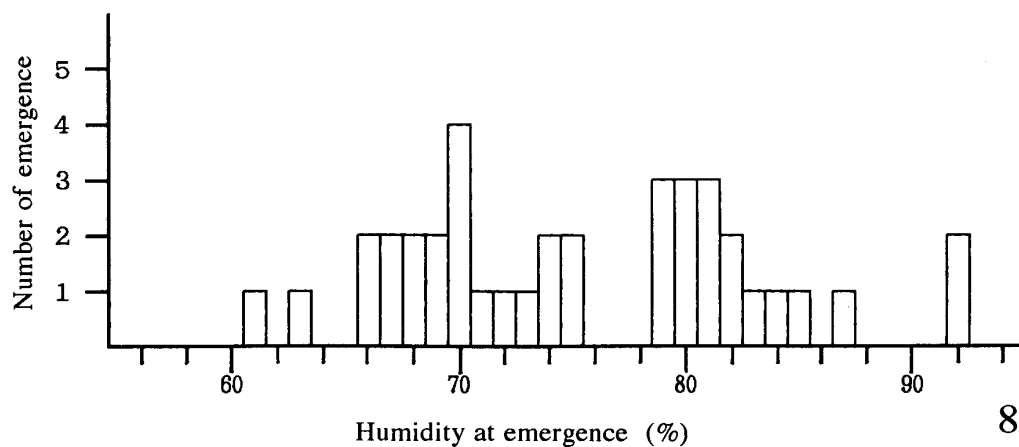


Fig. 8. Humidity at adult emergence of *Sesia scribai*.

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摘 要

コシアカスカシバ (鱗翅目, スカシバガ科) の羽化場所と羽化時の気象要因 (有田 豊・佐藤一喜)

スカシバガ類の成虫の羽化 (Fig. 1) は天候の良いときには朝はやく, 曇りや雨の日には昼間一日中行なわれること, また羽化が長期間にわたって行なわれることなどが知られている。

著者の一人佐藤は名古屋市北区の神社の境内のシラカシ *Quercus myrsinaefolia* の1本の大木の幹から数10頭のコシアカスカシバ *Sesia scribai* が発生しているのを見つけた (Figs 3-4)。そこで1993年8月10日から9月30日までの間に, コシアカスカシバの羽化日とその日の天候, 羽化場所, 羽化時刻, 羽化時の気温, 照度, 湿度などを朝7時から夕方4時まで毎日調査した。

調査した1993年の夏 (7-9月) は, 例年と異なり気温が低く, 雨の多い年であった。最初の羽化が見られたのは8月27日 (♀) で, 最後は9月25日 (♀) で, 30日間のあいだに20♂25♀の45頭であった。

羽化場所 (羽化口 (Fig. 2)) は45個のうち, 北に9個, 北東に0, 東に1個, 南東に4個, 南に1個, 南西に8個で, 西に6個, 北西に16個で, 北西に一番多かった (Figs 3-5)。また多くの羽化口は幹の150 cm以下の所にあった。

羽化時刻は, 記録の取れた38個体の内, 午前中に25個体, 午後に13個体が羽化した。また晴れの日には午前8-10時までの羽化が多く, 曇りや雨の日には午前7時から午後3時までの昼間一日中羽化が見られた (Table 1)。

羽化時の気温は23.5°-26.5°Cの間に多く見られ, 26個体がこの範囲で羽化していた (Fig. 6)。羽化時の照度は大部分が5,000 lux以下の明るさの時であった (Fig. 7)。また, 羽化時の湿度は60-92%までとばらつきが大きく, 羽化と湿度との関係は見られなかった (Fig. 8)。

コシアカスカシバの羽化場所は食草の木の幹の北と北西の部分に多く, また幹の150 cm以下の所にあった。これらのデータは, 成虫の羽化は気温が上昇しはじめて23°C頃が刺激になって, 羽化が始まることを伺わせる。

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